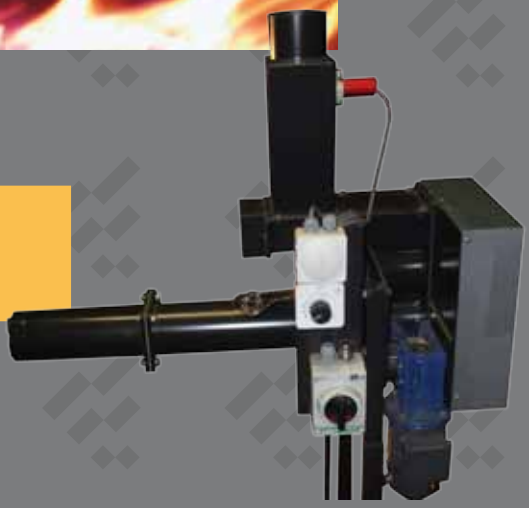
ARITERM

For a sustainable future.

INSTALLATION, OPERATION AND MAINTENANCE

PELLET FEEDER PS-10

- PS-10 60-200kW
- PS-10 250-400kW
- PS-10 500-1000kW



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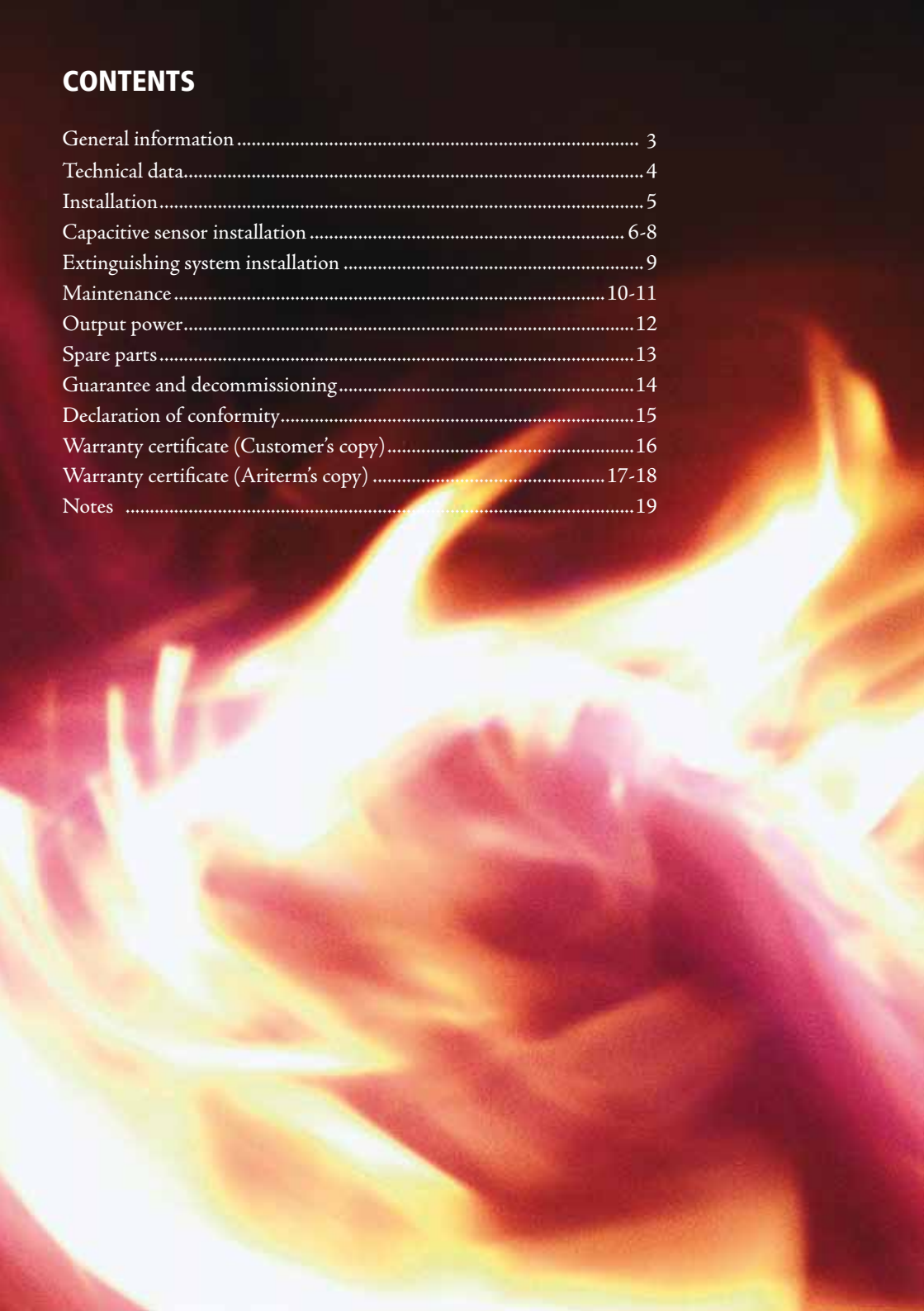


General information

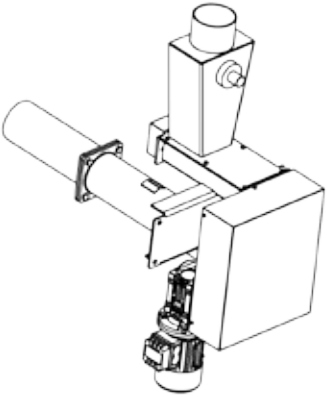
In this guide, we have collected important facts related to the installation, use and maintenance of the equipment. Ariterm Oy's devices have been designed to be reliable and the risk of backfire has been eliminated through many safety systems. By complying with the instructions in this guide an optimal functionality of the pellet feeder can be achieved. Ease of use is also substantially affected by the quality of the fuel to be used.

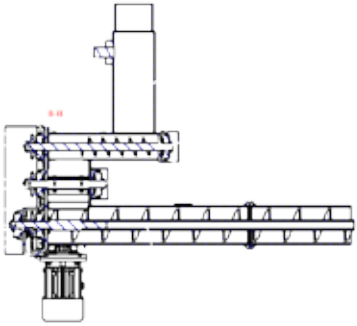
Receipt and handling

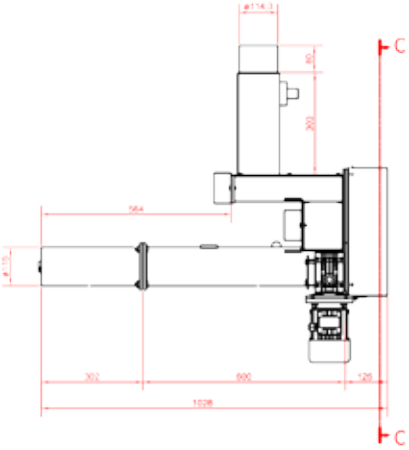
When receiving and accepting the shipment, check that its contents correspond to your order, as well as the final inspection report and equipment list supplied with the goods. If in doubt, contact the device vendor for advice.

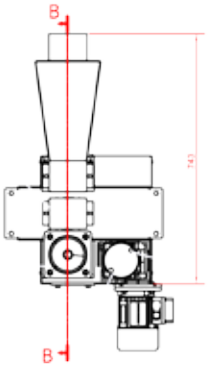
Before commencing with the installation, it is important to carefully read the installation and operating instructions of this feeder and the installation instructions of the boiler, the automatic equipment and the pellet store to be used. This way you can check beforehand that the critical matters and dimensions for a successful installation are in order.

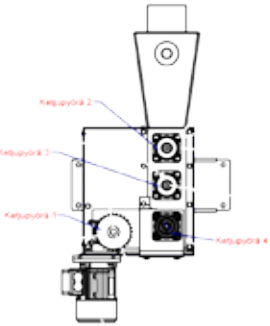
TECHNICAL DATA











TECHNICAL DATA			
	PS10 60 -200 kW 5151400	**PS10 250-400 kW 5151401**	**PS10 500-1000 kW 5151402**
Weight	79 kg		
Power range	60-200 kW	250-400 kW	500-1,000 kW
Power supply	Arimatic 200/1000/2000 3 x 230 VAC 50 Hz (D-coupling) Arimatic 150 400 Vac, 3~, 50 Hz (Y-coupling)		
Power in connection	120 W	250 W	370 W
Noise level	A-weighted sound pressure level below 70 db (A)		

INSTALLATION

If pellets are used as fuel, the burner auger may be replaced with a PS-10 type pellet feeder. A blocking feeder and a level switch for the control of the silo auger are incorporated in the feeder. PS-10 pellet feeder provides more balanced fuel supply and is equipped with an extra back fire protection. PS-10 pellet feeder is equipped with a powder extinguishing system. The system can provide an alarm when the extinguisher has been emptied.

Electrical installation

The following parts are already installed in the feeder:

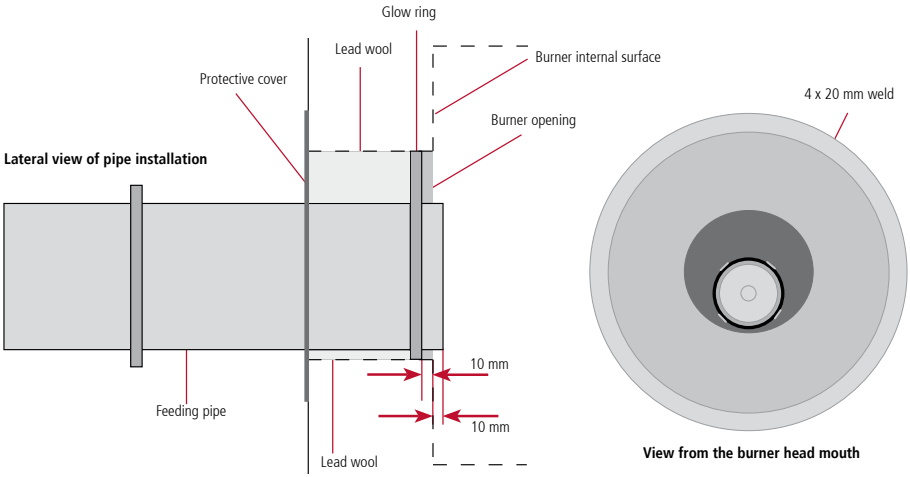
- backfire thermostat
- capacitive sensor
- safety switch for the motor

The feeder is connected to the control centre according to the control centre instructions. The motor has been connected to the safety switch at the factory. Please note the type of the motor cables (specified in the electrical connection diagram of the centre). Use a cable suitable for frequency converter use. Arimatic 150 control centre has a contactor output for PS-10 when the motor is connected to the star (400 Vac, 3~). Arimatic 200/1000/2000 control centre has a frequency converter use for PS-10 when the motor is connected to the triangle (3x230 Vac).

NOTE! THE ELECTRICAL INSTALLATION MUST BE CARRIED OUT BY A QUALIFIED INSTALLER!

Installing the pellet feeder in the burner

- Install the feeding pipe at a distance of about 10 mm from the internal side of the burner.
- Install the glow ring by welding it to the feeding pipe (eccentric hole to the lower edge).
- Seal with lead wool.
- Install the cuffs.
- Fasten to the floor with anchor bolts.
- Connect the drop pipe to the upper connection of the feeder.



CAPACITIVE SENSOR INSTALLATION

The delivery includes a capacitive sensor, a screwdriver for sensor adjustment and a fastening ring. Tighten the sensor into the installation hole in such a way that its head is about 5-10 mm above the internal surface of the funnel.

The supply voltage (24VAC/24VDC) is connected to the sensor with brown and blue wires. The identification information is read between the yellow and black wires. When the operating voltage is supplied to the sensor and the sensor does not recognise the pellet surface, the sensor contact is closed. When the sensor recognises the pellet surface, the contact opens.

The cabling must be carried out by means of a screened cable (e.g. Datajamak).

Level Sensors
Capacitive
Types VC11RT, VC12RT, VC12RN

- **Capacitive level sensor for solid, fluid or granulated substances**
- **Adjustable sensing distance: 4-12 mm**
- **VC11/12RT: With adjustable time delay**
- **VC12RN: Without time delay**

Product Description

Capacitive sensor in thermoplastic polyester for mounting in PG 36 screw gland. Available with adjustable sensing distance and with/-without built-in time delay (ON or OFF delay). The relay output ensures that the load can be driven directly. Excellent for use in the agriculture area (detection of grains, fluids etc.).

Ordering Key

VC11RT12010M

Type
Time delay
Voltage
Time

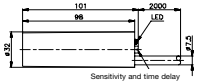
Type Selection

Supply voltage	Ordering no. With ON delay	Ordering no. With OFF delay	Ordering no. Without time delay
120 VAC	**VC 11RT12010M**	**VC 12RT12010M**	**VC 12RN120**
230 VAC	**VC 11RT23010M**	**VC 12RT23010M**	**VC 12RN230**
24 VAC/DC	**VC 11RT92410M**	**VC 12RT92410M**	**VC 12RN924**

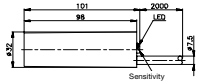
Specifications

Rated operational voltage	
120	120 VAC, 47-63 Hz
230	230 VAC, 47-63 Hz
924	24 VAC/DC, 47-63 Hz (VAC)
Consumption	Max. 1,5 W
Sensing distance	4-12 mm, adjustable
Hysteresis	1,5 mm at 7 mm sensing dist.
Operating frequency	1 Hz
Output	Relay SPDT, 2 A/240 VAC
Indication for output ON	LED, yellow
Time delay	
VC11/12RT	1 s - 10 m
Environment	
Degree of protection	IP 67
Operating temperature	-20° to +70°C (-4° to +158°F)
Storage temperature	-40° to +85°C (-40° to +185°F)
Housing material	Thermoplastic polyester
Cable	PVC, 2 m
Approvals	CSA (only with OFF delay)
CE-marking	Yes

Dimensions

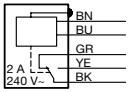


VC11RT/VC12RT



VC12RN

Wiring Diagram



VC11RT, VC12RT, VC12RN

CARLO GAVAZZI

Mode of Operation

VC12RN (See operation diagram). Power supply is applied to the sensor (brown and blue cables). The relay operates (connection between black and yellow cables) and remains ON until the sensor is activated. After activation of the sensor the relay releases (connection between black and grey cables.)

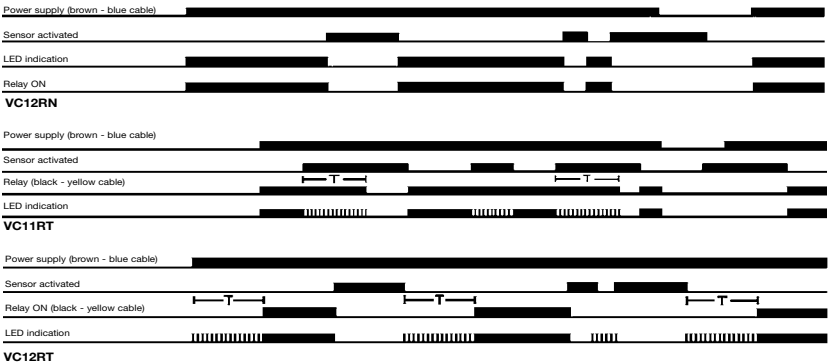
VC12RT (See operation diagram). Power supply is applied to the sensor (brown and blue cables) and time measurement starts. When the set time has expired (0-10 min.) the relay operates (connection between black and yellow cable) and remains connected until the sensor is activated. After activation of the sensor the relay releases (connection between black and grey cable). As soon as the sensor is unactivated again the time measurements of the set time starts.

VC11RT (See operation diagram). Power supply is applied to the sensor (brown and blue cables). When sensor is not activated, the relay operates (connection between black and yellow cables) and LED lights. When sensor is activated the time measurement starts and LED flashes. After expiration of the set time (0-10 min.), the relay releases (connection between black and grey cables) and LED turns off. The relay remains released until sensor is activated again.

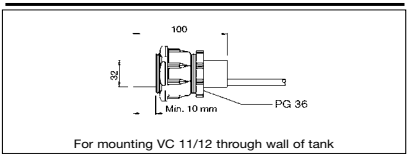
Adjustment

VC12RN **VC1.RT**

Operation Diagrams



Installation Hint



For mounting VC 11/12 through wall of tank

Delivery Contents

- Capacitive switch: VC11/12
- Screwdriver
- **Packaging:** Plastic bag
- User manual

Specifications are subject to change without notice (25.06.99)

EXTINGUISHING SYSTEM INSTALLATION

The powder extinguishing system has been preinstalled to the pellet feeder. Only the bottle valve has to be opened upon commissioning. (see instructions below).

Powder extinguishing system

- The powder extinguishing system consists of a bottle (+ spare bottle), a valve, extinguishing hoses and a red plastic sensor pipe.
- Install the red sensor pipe in the powder extinguisher unit and tighten it. Install the other end of the pipe under the damper hatch located on the auger pipe surface (see figure).
- NOTE! Open the extinguishing bottle valve slowly and in several stages to ensure even distribution of the sensor pipe gas pressure and to prevent the content of the bottle from being discharged accidentally.
- When heated, the pipe melts and breaks. This releases the pressure that keeps the extinguishing bottle valve closed. The sensor pipe can be used again after cutting off the melted part. Install the sealing plug again.
- Install the red hose filled with gas so that it melts when overheated and discharges the powder extinguishing device. The powder penetrates into the burner auger and puts out the fire.
- The bottles must be replaced and refilled during factory maintenance.

Changing the extinguishing bottle

1. Turn off the valve.
2. Detach the release hose from the bottle.
3. Plug the release hose hole in the valve body.
4. Remove the sensor pipe.
5. Change the bottle (including valves).
6. Attach the sensor pipe.
7. Open the valve slowly and in several stages.

NOTE! The extinguisher bottle must be filled with Forray-foam, which the equipment has been type approved with. The foam has been designed specifically for system installations. Ordinary extinguisher foam must not be used!

Bottle filling is available through Ariterm Oy or from specialised stores.

MAINTENANCE

NOTE! Cut the power off from the equipment before carrying out repairs and maintenance work!

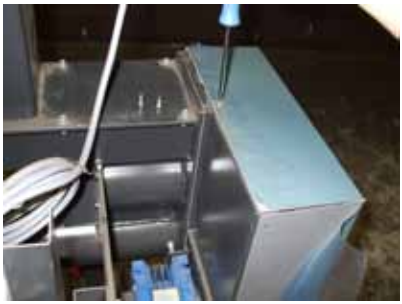
Maintenance and inspection measures

In order to guarantee faultless operation and long operating life, the following maintenance measures must be taken:

MAINTENANCE AND INSPECTION MEASURES	
Measure	**Frequency**
Lubricating the bearings of the feeding augers	2 times/year
Testing the operation of the backfire thermostat Decrease the set value of the thermostat until the equipment gives an alarm.	2 times/year
Checking the tightness of the blocking feeder	2 times/year
Checking the state of chain wheels and chains Lubrication with petroleum jelly for chains. Check the attachment.	2 times/year
Cleaning the capacitive sensor	2 times/year
THE MODELS ARE THE SAME WITH THE EXCEPTION OF THE TRANSMISSION OF CHAIN WHEELS AND THE MOTOR. TAKE THIS INTO ACCOUNT WHEN ORDERING SPARE PARTS.	

Lubricating the bearings of the feeding augers

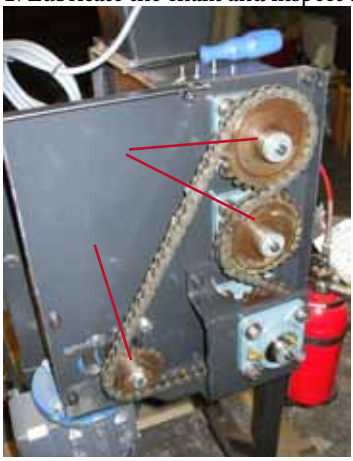
1. Detach the feeder chain protector and the feeding screw end protector.



2. Open the bearing nipple and add bearing oil.

Inspecting the chainwheels and chain

1. Lubricate the chain and inspect the chainwheel attachments.



Inspecting the blocking feeder

1. Detach the dropping funnel cover of the feeder.

2. Visually inspect the block feeder blades.

OUTPUT POWER

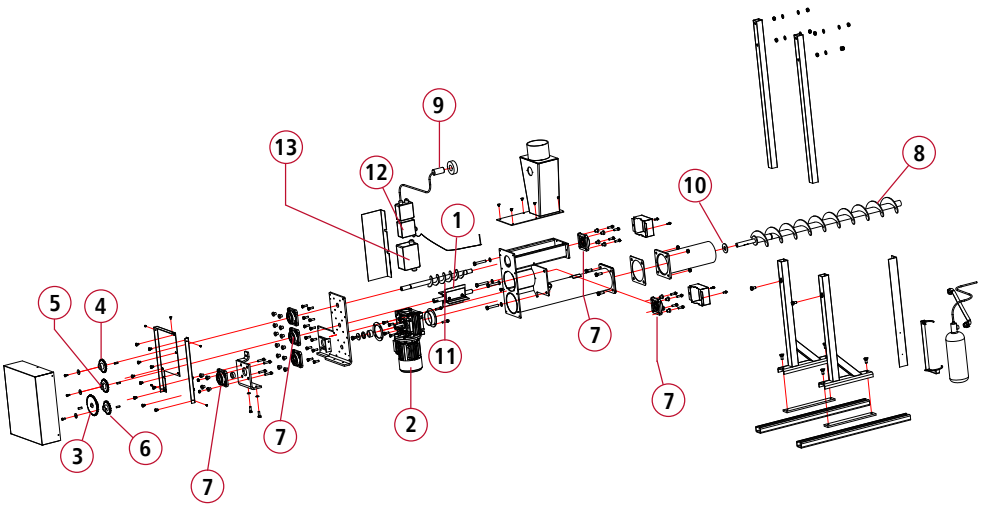
The pellet feeder is used with a frequency converter (Arimatic 200/1000/2000). The maximum frequency set for this converter determines the output power (see the table below). Tables powers are calculated by good quality 8mm wood pellet. Pelletfeeder is controller with contactors in Arimatic 150 control system.

Example: A system contains a Biojet burner (500 kW) and a PS10 feeder (model 5151402). The feeder is controlled by means of an Arimatic 200 or Arimatic 1000 control centre. It is assumed that the overall efficiency of the burner and boiler is 90%. The frequency corresponding to 500 kW can be checked from the "Power out (kW, 90%)" column of the table. The frequency to be set as maximum frequency is about 50 Hz.

The model of the frequency converter that controls the pellet feeder is Siemens Micromaster 420. The wiring diagrams of the control centre show the parameters set for the frequency converter. Check that the parameters P1082 and P2000 have been set to a value (Hz) that corresponds the desired maximum output of the burner. For additional information, please consult the operating instructions of the automatic equipment.

FREQUENCY / POWER TABLE		
PS10	**Frequency (Hz)**	**Power out (kW, 90%)**
5151400, 60-200 kW	100 87 66 52 35 26	228,0 200,0 150,0 120,0 80,0 60,0
5151401, 250-400 kW	100 82 62 51 31	485,0 400,0 300,0 250,0 150,0
5151402, 500-1,000 kW	100 91 63 45	1103,0 1000,0 700,0 500,0

SPARE PARTS



MOST COMMON SPARE PARTS				
No.	**Name**	**5151400** 60-200 kW	**5151401** 250-400 kW	**5151402** 500-1,000 kW
1	Blocking feeder rotor	13458	13458	13458
2	Gear motor	14262 Moves NMRV050-100-63B5+MS63B-6 120 W, 9 rpm	14263 Moves NMRV050-100-63B5+MS63C-4 250 W, 14 rpm	14401 Moves NMRV050-080-71B14+MS71B-4 370 W, 18 rpm
3	Hub chain wheel 1 (motor)	13440 (Z=13)	13442 (Z=17)	13884 (Z=27)
4	Hub chain wheel 2 (dosing auger)	13443 (Z=25)	13443 (Z=25)	13442 (Z=17)
5	Hub chain wheel 3 (block feeder)	13443 (Z=25)	13443 (Z=25)	13442 (Z=17)
6	Hub chain wheel 4 (burning auger)	13443 (Z=25)	13443 (Z=25)	13442 (Z=17)
7	Collar bearing UCF-204 (6 pcs)	14211	14211	14211
8	Burning auger (head + axle)	10556 / 13445	10556 / 13445	10556 / 13445
9	Capacitive sensor, Junction box, Wiska Combi 308/5	10661	10661	10661
10	Feeding auger thrust bearing	13448	13448	13448
11	Dosing auger	13444	13444	13444
12	Backfire thermostat	Z10472	Z10472	Z10472
13	Safety switch, Katko KUM316U1.V/EMC	-	-	-

GUARANTEE AND DECOMMISSIONING

Warranty terms for products manufactured from 2012

The equipment delivered by Ariterm is guaranteed for 1 year. The guarantee is valid for one year from the start-up date or up to 18 months from the date of delivery. The pressure vessels manufactured by Ariterm are guaranteed for 5 years from the date of delivery.

The guarantee is valid only if the filled out guarantee card has been returned to Ariterm. The detailed guarantee terms are printed on the guarantee card.

The guarantee covers manufacturing and material faults. New parts are delivered to replace the faulty ones by Ariterm. The guarantee does not cover consumables, installation work or other costs related to installation. Guarantee for spare parts is 12 months.

The guarantee does not cover possible incorrect implementation or installation, improper service or use errors, or damages caused by off-specification fuel.

Ariterm will supply the replacement parts to replace the damaged ones. Unless required by mandatory law, the agreement does not include any other guarantees. This paragraph determines exhaustively the defect liability of the Vendor and the buyer's legal remedies in a defect situation.

Decommissioning

A worn-out equipment can be scrapped.

DECLARATION OF CONFORMITY

ARITERM

VAATIMUSTENMUKAISUUSVAKUUTUS

Valmistaja: ARITERM OY
Osoite: PL 59, 43101 SAARIJÄRVI

Laite: **PS10 –pellettisyötin**

Valmistaja vakuuttaa,
- että valmistuksessa on noudatettu oheisen direktiivin vaatimuksia:

Konedirektiivi	2006/42/EY
Standardi	ISO/TR 14121-2

DECLARATION OF CONFORMITY - MANUFACTURERS DECLARATION

Manufacturer: ARITERM OY
Address: P.O.BOX 59, FIN-43101 SAARIJÄRVI

Equipment: **PS10 -pellet feeder**

Manufacturer assures,
- that in the production of the burner following directives have been applied:

Machine directive	2006/42/EC
Standard	ISO/TR 14121-2

FÖRSÄKRAN OM ÖVERENSSTÄMMELSE - TILLVERKAREDEKLARATION

Tillverkare: ARITERM OY
Adress: P.O.BOX 59, FIN-43101 SAARIJÄRVI

Apparat: **PS10 -pelletmatare**

Tillverkare försäkrar,
- att vid tillverkningen av brännaren har man iakttagit följande direktiven:

Maskindirektivet	2006/42/EG
Standard	ISO/TR 14121-2

28.6.2011
Ariterm Oy

Petteri Korpioja
Toimitusjohtaja
Managing director
Verkställande direktör

WARRANTY CERTIFICATE - PSIO

- Customer's copy -

INSTALLATION

Installation date	Serial number	Product PS10

CUSTOMER

Name	Telephone	E-mail
Address	Postal code	Town/city
Signature		

INSTALLATION ENGINEER

Installation company	Installation engineer	Telephone
Address	Postal code	Town/city
Signature		

Fill in the required information and keep this copy

Warranty terms

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WARRANTY CERTIFICATE - PSIO

- ARITERM OY's copy-

INSTALLATION

Installation date	Serial number	Product PS10

CUSTOMER

Name	Telephone	E-mail
Address	Postal code	Town/city
Signature		

INSTALLATION ENGINEER

Installation company	Installation engineer	Telephone
Address	Postal code	Town/city
Signature		

Send this warranty certificate to Ariterm Oy

- Cut the page off
- Staple the edges together so that the address is visible and then send by post

Warranty terms

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AFFIX STAMP HERE

Oy Ariterm Ab
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NOTES

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ORGANISATION
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